In the Claims

Please replace all prior versions, and listings, of claims in the application with the following list of claims:

1. (Previously presented) An electromechanically active material comprising:

a perovskite compound of the formula, $(Na_{1/2}Bi_{1/2})_{1-x}M_x(Ti_{1-y}M'_y)O_{3\pm z}$,

where M is one or more of Ca, Sr, Ba, Pb, Y, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu; and M' is one or more of Zr, Hf, Sn, Ge, Mg, Zn, Al, Sc, Ga, Nb, Mo, Sb, Ta, W, Cr, Mn, Fe, Co and Ni, and $0.01 < x < 0.3$, and $0.01 < y < 0.3$, and $z < 0.1$.

2. (Original) An electromechanically active material comprising:

a perovskite compound of the formula, $(Na_{1/2}Bi_{1/2})_{1-x}M_x (Ti_{1-y}M'_y)O_{3\pm z}$,

where M is one or more of Ca, Sr, Ba, and Pb; and M' is one or more of Zr, Hf, and Sn, and $0.01 < x < 0.3$, and $0.01 < y < 0.2$, and $z < 0.1$.

3. (Original) An electromechanically active material comprising:

a perovskite compound of the formula, $(Na_{1/2}Bi_{1/2})_{1-x}Ba_x(Ti_{1-y}M'_y)O_{3\pm z}$,

where M' is one or more of Zr and Hf, and $0.01 < x < 0.2$, $0.01 < y < 0.1$, and $z < 0.1$.

4. (Previously presented) The material of claim 1, 2 3, or 45, wherein the material is selected from the group consisting of single crystals, textured polycrystalline materials, and polycrystalline materials.

5. (Original) The material of claim 4 wherein the material is in the form of a rod, fiber, ribbon, or sheet.

6. (Original) The material of claim 4, wherein the material is a polycrystalline material.

7. (Previously presented) The material of claim 1, 2, 3, or 45, wherein the material is a piezoelectric material.

8. (Previously presented) The material of claim 1, 2, 3, or 45, wherein the material is an electrostrictive material with an electric field-induced strain greater than about 0.1% at a field less than 60 kV/cm.

9. (Previously presented) The material of claim 1, 2, 3, or 45, wherein the material is an electrostrictive material with an electric field-induced strain greater than about 0.2% at a field less than 60kV/cm.

10. (Previously presented) The material of claim 1, 2, 3, or 45, wherein the material is an electrostrictive material with an electric field-induced strain up to about 0.45% at a field less than 60 KV/cm.

11. (Previously presented) The material of claim 1, 2, 3, or 45, wherein the material exhibits a field-forced phase transition.

12. (Previously presented) The material of claim 1, 2, 3, or 45, wherein the material exhibits both piezoelectric properties and field-forced phase transition.

13. (Previously presented) The material of claim 30, wherein the parameters α, β and γ are selected such that the perovskite phase has a rhombohedral crystal symmetry.

14. (Previously presented) The material of claim 30, wherein parameters α, β and γ are selected such that the perovskite phase has a tetragonal crystal symmetry.

15. (Original) An electromechanically active material comprising:

a single crystal perovskite material of the formula M_α, $Bi_\beta M'_\gamma M''_\delta O_{3\pm z}$,

where M is one or more of Na, K, Rb and Cs; M' is one or more of Ca, Sr, Ba, Pb, Y, La, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu; and M" is one or more of Ti, Zr, Hf, Sn, Ge, Mg, Zn, Al, Sc, Ga, Nb, Mo, Sb, Ta, W, Cr, Mn, Fe, Co and Ni;

where $z \leq 0.1$; $0.9 \leq \delta \leq 1.1$; α, β and γ are greater than zero; and $(\alpha + \beta + \gamma)$ is in the range of about 0.75 to 1.1.

16. (Original) An electromechanically active material comprising:

a perovskite material of the formula, $Na_{\omega}M_{\alpha}Bi_{\beta}M'_{\gamma}M''_{\delta}O_{3\pm z}$,

where M is one or more of K, Rb and Cs; M' is one or more of Ca, Sr, Ba, Pb, Y, La, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu; M" is one or more of Ti, Zr, Hf, Sn, Ge, Mg, Zn, Al, Sc, Ga, Nb, Mo, Sb, Ta, W, Cr, Mn, Fe, Co and Ni;

where $z \leq 0.1$; $0.9 \leq \delta \leq 1.1$; α, β, γ and ω are greater than zero; and $(\alpha + \beta + \gamma + \omega)$ is in the range of about 0.75 to 1.1.

17. (Original) The material of claim 16, wherein the material is selected from the group consisting of single crystalline materials, textured crystalline materials, and polycrystalline materials.

18. (Original) The material of claim 15 or 16, wherein the material is in the form of a rod, fiber, ribbon, or sheet.

19. (Original) The material of claim 30, wherein $(\alpha + \beta + \gamma)$ is the range of about 0.75 to 0.95.

20. (Original) The material of claim 15 or 16, wherein perovskite material has a d_{33} value of greater than 200 pC/N.

21. (Original) The material of claim 15 or 16, wherein the material exhibits a strain of greater than 0.15%.

22. (Original) The material of claim 15 or 16, wherein the material exhibits a low hysteresis of actuation.

23. (Original) The material of claim 16, wherein M comprises K.

24. (Original) The material of claim 15 or 16, wherein the material is a single crystallite and the crystallite is a faceted crystal having a selected crystalline plane exposed.

25. (Original) The piezoelectric material of claim 24, wherein the exposed plane is the {100} plane of the corresponding cubic phase.

26. (Original) The piezoelectric material of claim 15 or 16, wherein the parameters α, β and γ are selected such that the perovskite phase has a rhombohedral crystal symmetry.

27. (Original) The piezoelectric material of claim 15 or 16, wherein parameters α, β and γ are selected such that the perovskite phase has a tetragonal crystal symmetry.

28. (Original) The piezoelectric material of claim 26, wherein parameters α, β and γ are selected such that the piezoelectric material lies near a morphotropic phase boundary or point.

29. (Original) The piezoelectric material of claim 27, wherein parameters α, β and γ are selected such that the piezoelectric material lies near a morphotropic phase boundary or point.

30. (Original) An electromechanically active material comprising:

a perovskite material having tetragonal crystal symmetry of the formula, $M_{\alpha}Bi_{\beta}M'_{\gamma}M''_{\delta}O_{3\pm z}$,

where M is one or more of Na, K, Rb and Cs, wherein M comprises at least Na; M' is one or more of Ca, Sr, Ba, Pb, Y, La, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu; M" is one or more of Ti, Zr, Hf, Sn, Ge, Mg, Zn, Al, Sc, Ga, Nb, Mo, Sb, Ta, W, Cr, Mn, Fe, Co and Ni;

where $z \leq 0.1$;

$\alpha + \beta + \gamma + \delta < 2.0$;

$\alpha < \beta$; and

$\beta < 0.05$.

31. (Previously presented) The material of claim 30 where $0.32 < \beta < 0.5$.

32-42. (Cancelled)

43. (Previously presented) The material of claim 30, wherein α, β and γ are selected such that the perovskite material is antiferroelectric prior to the application of an electric field, and

such that under an applied electric field, the perovskite material transforms to a ferroelectric phase, said transformation being accompanied by a strain of at least 0.1%.

44. (Original) The material of claim 43, wherein M=Na, M'=Ba, M"=Ti, and said transformation from antiferroelectric to ferroelectric phase is attained at a temperature of less than about 100° C.

45. (Previously presented) An electromechanically active material comprising:

a perovskite compound of the formula, $(Na_{1/2}Bi_{1/2})_{1-x}M_x(Ti_{1-y}M'_y)O_{3\pm z}$,

where M is one or more of Ca, Sr, Ba, Pb, Y, La, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu; and M' is one or more of Zr, Hf, Sn, Ge, Mg, Zn, Al, Sc, Ga, Nb, Mo, Sb, Ta, W, Cr, Mn, Co and Ni, and $0.01 < x < 0.3$, and $0.01 < y < 0.3$, and $z < 0.1$.